

Credit Name: CSE 2120 Data Structures 1

Assignment Name: Palindrome Mastery

How has your program changed from planning to coding to now? Please explain?

PLANNING:

I plan to declare variables, prepare the scanner, and prompt the user for input (word/phrase). User input will be stored in a variable, and all non-alphabetic characters, such as spaces, will be removed. I will then add the characters of the word/phrase into an array. The program will then calculate and print whether the word is a palindrome by comparing the characters from the start to the end of the array. A character isn't a palindrome if it doesn't match its reversed counterpart.

CODING:

1.

```
//Prepare scanner for user input
Scanner input = new Scanner(System.in);

//Declaring variables
//string to store user input word/phrase
//array to store the letters of the word
//boolean is used when deciding if word/
char[] wordletters;
String words;
boolean ispalindrome = true;
```

Prepare scanner for user input

Declared the following variables:

words variable stores the literal user input.

wordletters array to store the letters of the word/phrase.

Boolean will be later used to print the final answer.

2.

```
//Prompt User to enter a word/phrase
System.out.println("Please enter a word or phrase:");

//user input is stored in the words string, and it is
words = input.nextLine().toLowerCase();

//removes non alphabetic characters, such as spaces
words = words.replaceAll("[^a-z]", "");

//adding each letter of the word/phrase into an array
wordletters = words.toCharArray();
```

Prompt the user for a word or phrase.

Store the value in the words string, and set it to lowercase.

Remove the non-alphabetical characters such as spaces.

Added each of the letters of the word/phrase into the array using .toCharArray()

3.

```
//calculation to find out if the userinput is a palindrome or not
for (int i = 0; i < wordletters.length / 2; i++) {

    //compares the characters from start to end of array
    //if a character doesn't match the reversed counterpart, it is not a palindrome
    if (wordletters[i] != wordletters[wordletters.length - 1 - i]) {
        ispalindrome = false;
    }
}
```

For loop iterates the letters of the word/phrase, and compares the characters from start to end. If a character doesn't match the reversed counterpart, then it isn't a palindrome. Therefore ispalindrome boolean will be set to false.

4.

```
if (ispalindrome == true) {
    System.out.println("The word or phrase you entered is a palindrome.");
}
//phrase isn't a palindrome
else {
    System.out.println("The word or phrase you entered is not a palindrome.");
}
```

If ispalindrome boolean is true, then program will print that the word/phrase is a palindrome.

Else, (ispalindrome boolean is false), then the program will print that the word/phrase is NOT a palindrome.